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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,596	04/05/2006	Motohiko Sako	MAT-8837US	4300
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P.O. BOX 980				
VALLEY FORGE, PA 19482				
EXAMINER				
KARACSONY, ROBERT				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/574,596

**Applicant(s)**

SAKO, MOTOHIKO

**Examiner**

ROBERT KARACSONY

**Art Unit**

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 6 and 10 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The following Office Action is in response to amendments received December 16, 2008. Claims 1-10 are currently pending.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Izadian* (US 5,300,936, hereinafter *Izadian*) in view of *Kuramoto* (US 6,788,265, hereinafter *Kuramoto*).

Claim 1: *Izadian* (fig. 8) teaches a composite antenna device comprising:

a ground board (28);

an unbalanced antenna (22) including,

a first feeding point (feed of antenna 22) electrically coupled with the ground board,

a first radiator (22) having a first end and a second end, the first end of the first radiator being connected with the first feeding point; and

a balanced antenna (112) including

a second feeding point (feed of 112) electrically isolated from the first feeding point,

a second radiator (one of 112) connected with the second feeding point, and  
a third radiator (other one of 112 opposite of second radiator) connected with the  
second feeding point,  
wherein the second radiator and the third radiator are placed at positions  
symmetrical to each other about the straight line, respectively, and have shapes  
symmetrical to each other about the straight line (fig. 8).

*Izadian* fails to teach a load conductor connected with the second end of the first radiator, the load conductor intersects a straight line which also passes through the first feeding point and which is perpendicular to the ground board, the load conductor has a shape symmetrical about the straight line. However, *Kuramoto* teaches loading monopole antennas to reduce/shorten the length of the antenna (col. 1/lines 50-54). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have loaded antenna 22 of *Izadian*, as taught by *Kuramoto*, in order to have reduced the length of the antenna.

Claim 2: The modified invention of *Izadian* teaches the shape of the load conductor is electrically symmetrical about the straight line passing through the first feeding point, and wherein the second radiator and the third radiator are placed at positions electrically symmetrical to each other about the straight line, respectively, and have shapes electrically symmetrical to each other about the straight line (since the dimensions of the structure are symmetrical, it is inherently electrically symmetrical).

Claim 3: The modified invention of *Izadian* teaches wherein the shape of each of the load conductor and the first radiator is symmetrical about a plane intersecting the straight line, the plane extending perpendicular to the ground board and passing through the first feeding

point, and wherein the second radiator and the third radiator are placed at positions symmetrical to each other about the plane, respectively, and have shapes symmetrical to each other about the plane (fig. 8).

Claim 4: The modified invention of *Izadian* teaches the shape of each of the load conductor and the first radiator is electrically symmetrical about the plane, and wherein the second radiator and the third radiator are placed at positions electrically symmetrical to each other about the plane, respectively, and have shapes electrically symmetrical to each other about the plane (since the dimensions of the structure are symmetrical, it is inherently electrically symmetrical).

Claims 7 and 8: The modified invention of *Izadian* teaches the plane extends along the first radiator (fig. 8).

Claim 9: The modified invention of *Izadian* teaches the unbalanced antenna is between the balanced antenna and the ground board (fig. 8).

***Allowable Subject Matter***

4. Claims 5, 6 and 10 are allowed.
5. The following is an examiner's statement of reasons for allowance:
6. Claim 5 is allowable because prior art fails to teach, along with all of the other limitations of claim 5, an impedance  $Z_{11}$  of the first portion of the load conductor, a mutual impedance  $Z_{12}$  of the second radiator to the first portion of the load conductor, a mutual impedance  $Z_{21}$  of the first portion of the load conductor to the second radiator, an impedance  $Z_{22}$  of the second radiator, an impedance  $Z_{33}$  of the second portion of the load conductor, a mutual impedance  $Z_{34}$  of the third radiator to the second portion of the load conductor, a mutual impedance  $Z_{43}$  of the

second portion of the load conductor to the third radiator, and an impedance  $Z_{44}$  of the third radiator satisfy the relation of

$$\begin{pmatrix} Z_{11} & Z_{12} \\ Z_{21} & Z_{22} \end{pmatrix} = \begin{pmatrix} Z_{33} & Z_{34} \\ Z_{43} & Z_{44} \end{pmatrix}.$$

7. Claims 6 and 10 are allowed for at least depending on allowable claim 5.
8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Arguments***

9. Applicant's arguments filed December 16, 2008 have been fully considered but they are not persuasive.
10. Regarding the arguments that "because *Kuramoto* teaches away from electrically coupling the feeding point to the ground board, the skilled person would not combine the antenna of *Kuramoto* with the antenna of *Izadian* to produce the subject invention," see page 9, paragraph 1 of the Remarks, the Examiner respectfully disagrees with Applicant. Examiner notes that it is well known in the art of antennas to use various types of feed element to feed antennas, such as coaxial cables, microstrip, stripline, etc.. Therefore, although *Kuramoto* teaches the antenna fed by a microstrip, one having ordinary skill in the art of antennas would still have been motivated to combine the antenna of *Kuramoto* with the antenna of *Izadian*.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT KARACSONY whose telephone number is (571)270-1268. The examiner can normally be reached on M-F 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. K./  
Examiner, Art Unit 2821

/Hoang V Nguyen/  
Primary Examiner, Art Unit 2821